



STIC Search Report

EIC 1700

STIC Database Tracking Number: EIC 1700

TO: Charles Richard
Location: REM 10A58
Art Unit : 1712
December 27, 2005

Case Serial Number: 10/764667

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
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Search Notes

gone thru cra 12/28/05



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

**Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28**

Voluntary Results Feedback Form

➤ *I am an examiner in Workgroup:* *Example: 1713*
➤ *Relevant prior art found, search results used as follows:*

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Charles Richard Examiner #: 80938 Date: 12/19/05
 Art Unit: 1712 Phone Number 30 28502 Serial Number: 10/26467
 Mail Box and Bldg/Room Location: Renss Results Format Preferred (circle) PAPER DISK E-MAIL
10 A 58

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Method of Reducing Sag in non-aqueous Fluid.
 Inventors (please provide full names): Falana, Patel & Stewart

Earliest Priority Filing Date: 1/26/04

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Note: please filter out references dealing with
 Cystal as in cell cytoplasm as they are
not relevant. The crystal here is a

specific compound type. Claims attached

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr.
 DEC 19 2005
 Pat. & T.M. Office

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: <u>CDL</u>	NA Sequence (#)	STN <u>5 264 73</u>
Searcher Phone #:	AA Sequence (#)	Dialog
Searcher Location:	Structure (#)	Questel/Orbit
Date Searcher Picked Up: <u>10/23/05</u>	Bibliographic	Dr. Link
Date Completed: <u>10/27/05</u>	Litigation	Lexis/Nexis
Searcher Prep & Review Time: <u>30</u>	Fulltext	Sequence Systems
Clerical Prep Time: <u>30</u>	Patent Family	WWW/Internet
Online Time: <u>45</u>	Other	Other (specify)

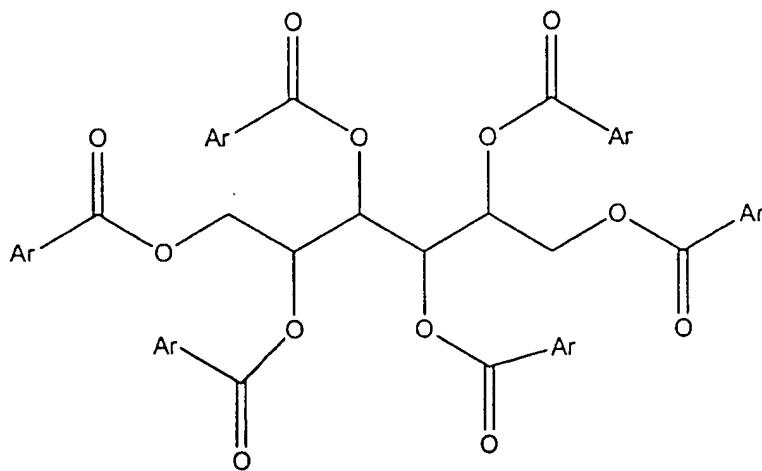
ABSTRACT

Methods of reducing sag include combining a cystol ester compound with a non-aqueous fluid and particles to reduce sag in the resulting fluid composition without significantly increasing the viscosity of the fluid composition. The fluid composition comprises the non-aqueous fluid, the particles, and the cystol ester compound. Suitable cystol ester compounds include cystol ester and derivatives of cystol ester having mono-, di-, or tri- substituted aromatic compounds as substituents. The non-aqueous fluid may comprise an invert emulsion, diesel oil, mineral oil, an olefin, an organic ester, a synthetic fluid, or combinations thereof. Further, the fluid composition may be used as a wellbore servicing fluid such as a drilling fluid. The particles may comprise a weighting agent, e.g., barite, galena, hematite, dolomite, calcite, or combinations thereof. The fluid composition may also include organophilic clay.

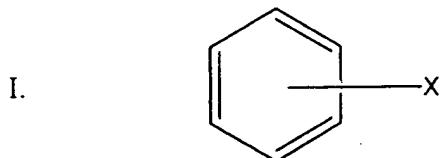
CLAIMS

What is claimed is:

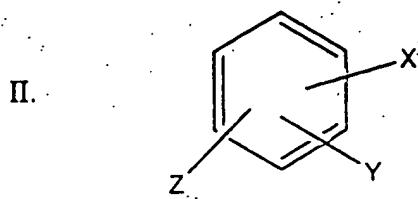
1. A method for reducing sag in a fluid composition, comprising: combining a cystol ester compound with a non-aqueous fluid and particles to reduce sag in the resulting fluid composition.
2. The method of claim 1, wherein the cystol ester compound is generally represented by the following formula:



wherein Ar is generally represented by the following formula:



or



wherein in formula I, X = hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, or an aryl group, and

wherein in formula II, X = Y = Z = an alkoxy or an alkyl group; X = Y or Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group; X = Y ≠ Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group; or X ≠ Y ≠ Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group.

3. The method of claim 1, wherein the non-aqueous fluid comprises an invert emulsion, diesel oil, mineral oil, an olefin, an organic ester, a synthetic fluid, or combinations thereof.

4. The method of claim 1, wherein the fluid composition comprises a wellbore servicing fluid.

5. The method of claim 4, wherein the wellbore servicing fluid comprises a drilling fluid, a work over fluid, a completion fluid, a drill-in fluid, or a kill fluid.

6. The method of claim 1, wherein the cystol ester compound comprises cystol ester, hexa-O-benzoyl cystol, hexa-O-*para*-toluoyl cystol, hexa-O-*meta*-toluoyl cystol, hexa-O-*ortho*-toluoyl cystol, hexa-O-*para*-*tert*-butylbenzoyl cystol, hexa-O-*para*-pentylbenzoyl cystol, hexa-O-*para*-heptylbenzoyl cystol, hexa-O-*para*-chlorobenzoyl cystol, hexa-O-*para*-cyanobenzoyl cystol,

hexa-*O*-*para*-nitrobenzoyl cystol, hexa-*O*-3,4,5-trimethoxybenzoyl cystol, or combinations thereof.

7. The method of claim 1, wherein the cystol ester compound comprises hexa-*O*-*para*-toluoyl cystol.

8. The method of claim 1, wherein the particles comprise a weighting agent.

9. The method of claim 1, wherein the particles comprise barite, galena, hematite, dolomite, calcite, or combinations thereof.

10. The method of claim 1, wherein an amount of the cystol ester compound present in the non-aqueous fluid is in a range of from about 0.05 % to about 5 % by total weight of the final fluid composition.

11. The method of claim 1, wherein an amount of the cystol ester compound present in the non-aqueous fluid is in a range of from about 0.1 % to about 4 % by total weight of the final fluid composition.

12. The method of claim 1, wherein an amount of the cystol ester compound present in the non-aqueous fluid is in a range of from about 0.2 % to about 3 % by total weight of the final fluid composition.

13. The method of claim 1, wherein the non-aqueous fluid comprises organophilic clay.

14. The method of claim 1, wherein the non-aqueous fluid comprises an invert-emulsion and the particles comprise barite.

15. The method of claim 14, wherein a reduction in the sag is in a range of from about 5 % to about 100 %.

16. The method of claim 14, wherein a reduction in the sag is in a range of from about 10 % to about 100 %.

17. The method of claim 14, wherein a reduction in the sag is in a range of from about 15 % to about 100 %.

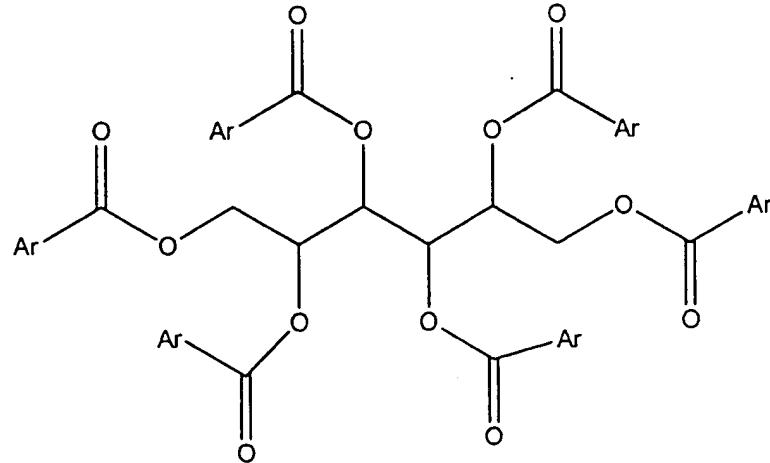
18. The method of claim 14, wherein an apparent viscosity of the fluid composition changes by less than about 50 % when the cystol ester compound is added.

19. The method of claim 14, wherein an apparent viscosity of the fluid composition changes by less than about 20 % when the cystol ester compound is added.

20. The method of claim 14, wherein an apparent viscosity of the fluid composition changes by about 5 % when the cystol ester compound is added.

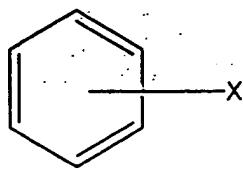
21. A fluid composition comprising: a non-aqueous fluid, particles, and a cystol ester compound for reducing sag in the fluid composition.

22. The fluid composition of claim 21, wherein the cystol ester compound is generally represented by the following formula:



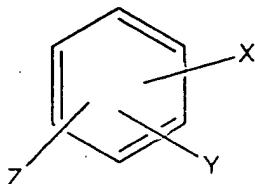
wherein Ar is generally represented by the following formula:

I.



or

II.



wherein in formula I, X = hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, or an aryl group, and

wherein in formula II, X = Y = Z = an alkoxy or an alkyl group; X = Y or Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group; X = Y \neq Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group; or X \neq Y \neq Z with X, Y, and Z being selected from the group consisting of hydrogen, an alkyl group, an alkoxy group, a nitro group, a halide group, a cyano group, an amino group, and an aryl group.

23. The fluid composition of claim 21, wherein the non-aqueous fluid comprises an invert emulsion, diesel oil, mineral oil, an olefin, an organic ester, a synthetic fluid, or combinations thereof.

24. The fluid composition of claim 21, being a wellbore servicing fluid.

25. The fluid composition of claim 24, wherein the wellbore servicing fluid comprises a drilling fluid, a work over fluid, a completion fluid, a drill-in fluid, or a kill fluid.
26. The fluid composition of claim 21, wherein the cystol ester compound comprises cystol ester, hexa-*O*-benzoyl cystol, hexa-*O*-*para*-toluoyl cystol, hexa-*O*-*meta*-toluoyl cystol, hexa-*O*-*ortho*-toluoyl cystol, hexa-*O*-*para*-*tert*-butylbenzoyl cystol, hexa-*O*-*para*-pentylbenzoyl cystol, hexa-*O*-*para*-heptylbenzoyl cystol, hexa-*O*-*para*-chlorobenzoyl cystol, hexa-*O*-*para*-cyanobenzoyl cystol, hexa-*O*-*para*-nitrobenzoyl cystol, hexa-*O*-3,4,5-trimethoxybenzoyl cystol, or combinations thereof.
27. The fluid composition of claim 21, wherein the cystol ester compound comprises hexa-*O*-*para*-toluoyl cystol.
28. The fluid composition of claim 21, wherein the particles comprise a weighting agent.
29. The fluid composition of claim 21, wherein the particles comprise barite, galena, hematite, dolomite, calcite, or combinations thereof.
30. The fluid composition of claim 21, wherein an amount of the cystol ester compound present in the fluid composition is in a range of from about 0.05 % to about 5 % by total weight of the fluid composition.
31. The fluid composition of claim 21, wherein an amount of the cystol ester compound present in the fluid composition is in a range of from about 0.1 % to about 4 % by total weight of the fluid composition.
32. The fluid composition of claim 21, wherein an amount of the cystol ester compound present in the fluid composition is in a range of from about 0.2 % to about 3 % by total weight of the fluid composition.
33. The fluid composition of claim 21, further comprising organophilic clay.

34. The fluid composition of claim 21, wherein the non-aqueous fluid comprises an invert-emulsion and the particles comprise barite.
35. The fluid composition of claim 34, wherein the cystol ester compound is capable of reducing the sag by from about 5 % to about 100 %.
36. The fluid composition of claim 34, wherein the cystol ester compound is capable of reducing the sag by from about 10 % to about 100 %.
37. The fluid composition of claim 34, wherein the cystol ester compound is capable of reducing the sag by from about 15 % to about 100 %.
38. A fluid composition made by the method of claim 1.
39. The fluid composition of claim 38, wherein the non-aqueous fluid comprises an invert-emulsion and the particles comprise barite.
40. The fluid composition of claim 39, wherein the sag is reduced by from about 5% to about 100 %.
41. The fluid composition of claim 39, wherein the sag is reduced by from about 10 % to about 100 %.
42. The fluid composition of claim 39, wherein the sag is reduced by from about 15 % to about 100 %.